The Dynamics of Singularities Beneath the Event Horizon

11 May 2022
Simon Edwards
Research Acceleration Initiative

Introduction

Building upon the Hawking hypothesis that there would be some form of radiation emitted by singularities, I have mapped out some additional features and dynamics of singularities not specified by Hawking. With luck, we'll be able to confirm or disprove some of this in the near future by using supercomputers to simulate singularity formation and dynamics, as real observations would be impossible.

Abstract

Carl Sagan pointed out 43 years ago that ordinary stars are composed of hot gasses that are trying to escape, but are contained by their own magnetic field. He went on to explain that dwarf stars are so massive that their mass prevents the free motion of these gasses and causes them to be compacted while retaining their electron clouds. Neutron stars, he said, were so massive that the electron clouds of their atoms lacked sufficient repulsive force to keep their nuclei from touching and so neutron stars are composed entirely of protons and neutrons and no electrons (their effective gravity may in fact be higher because of this property according to my publication of April 13, 2022.) I propose that a singularity takes this compression a step further.

Whereas a neutron star features intact protons and neutrons, a singularity's mass is so great that protons and neutrons do not retain their structural integrity and are broken down into their constituent subatomic particles.

It is important to understand that a singularity must begin its life as a massive star. Somehow, it gets along fine as a star up to a certain point where, later in life, it collapses into a singularity. As a star ages, it progresses from fusing hydrogen into helium to fusing some hydrogen and some helium, and finally, to fusing mostly helium, then even heavier elements from there. Since the "difficulty" of fusing these heavier elements increases exponentially (provided that the electron clouds of these elements are intact, and remember, in neutron stars, they are not) the temperature at the core of a star must decrease as each each element is worked through. The heavier the element being fused, the less heat is generated by this reaction. Since the material in neutron stars has already done the difficult work of shedding electron clouds, many of those neutron stars could, in fact, later become singularities. Others may lack sufficient mass for this to occur. We know that not all neutron stars are destined to become singularities since in order for there to be uranium, for example, on Earth, some neutron stars would have to dissipate and not collapse into a black hole, which would effectively convert all of that element into pure energy.

There is a specific threshold that is difficult to estimate at which a neutron star or any star would have enough attractive force (not mass, which I will

explain later) to eventually become a singularity, but despite not knowing what that threshold is, it is still reasonable to assume that it exists. Understanding this is critical for understanding why all singularities must slough off much of their mass at the time of that transition so that they begin their lives as singularities with nearly identical mass, regardless of the mass of the neutron star that spawned them.

Current conventional wisdom holds that the masses of singularities are variable, with supermassive black holes likely existing at the center of this and other galaxies. While I believe that the mass of black holes varies, I believe that all singularities must start out with a virtually identical mass. I furthermore intend to explain why I believe that singularities cannot accumulate new mass regardless of how much material they seem to absorb in their lifetimes. On a related note, it should be pointed out that the absence of stars near the center of galaxies can be explained by reduced levels of gravity in those areas.

Just as there is reduced gravity at the center of the Earth, there should be reduced gravity at the center of a galaxy, and under reduced gravitational conditions, stellar formation cannot occur. It’s not that stars are being “sucked into” the center of the galaxy, it’s that stars will not form there in the first place. This ties into my publication of May 7, 2022.

If we assume that singularities compress mass down to an even more granular level than does a neutron star, we are left with gluons, leptons, and bosons. We already understand that gluons are strong attractors, and that multiple gluons in contact with one another exponentially increase that attractive force, known as the strong nuclear force. In publications of December 28, 2019 and and December 26, 2021, I explained how the accumulation of these strong attractors was the key to making practical, man-made fusion energy possible.

Although singularities must start off with a relatively high mass in order to trigger initial formation, it is important to remember that these bodies have already shed most of their mass simply in the course of generating energy throughout their lifetimes. We can infer that there is a specific threshold at which protons and neutrons will, due to the sheer number accumulating at the core of certain neutron stars (equivalent to a single atom of an ultra-heavy element with hundreds of thousands of protons and neutrons at its core) will collapse into subatomic particles, something which must happen extremely abruptly and would look something like a bubble bursting.

I propose that this is not related to the mass of the star at all, but rather, the number of protons in the core of a neutron star and the cumulative mutual attraction of their gluonic components combined with increased gravitational conditions relative to mass. In a star, mass is constantly decreasing, not increasing. The one variable that is increasing steadily in a neutron star is the number of positively charged ions in its core. This overabundance of positive charge and mutual gluonic attraction is what triggers the final collapse, not mass.

This collapse, if it could be witnessed, would consist of gluons that, although

initially spread out over an area the size of a major city, rapidly finding one another and merging into odderons composed gluons triplet that would redouble until, within about a millisecond, the cumulative gluons would be amassed in two odderonic masses, each about 4 feet in diameter. Although these specialized odderons are attracted to each other with extreme force, they remain as two distinct bodies. The reason for two superattracting odderon accumulations instead of just one has to do with the way in which energy is ejected from the singularity. While there would be enormous amounts of force trying to bring the two superattracting odderons together, a layer of bosons just outside of the immediate area of of the gluons would be convected at a high rate of speed, passing between the tiny space between the two "dancing" glueballs at the center of the singularity.

In much the same way that a pulsar can complete a rotation hundreds of times per second, these glueballs would dance around each other (not unlike a binary star) at a rate of millions of revolutions per second, within an area of about 8 feet in diameter. W and Z bosons, for example, would flow from North to South and be ejected from the south pole of the singularity, and leptons would flow from South to North, being ejected from the north pole of the singularity. The bosons and the leptons would seamlessly pass through the same narrow corridor without effective resistance despite moving in opposite directions. In a newly formed singularity, the distance between the odderon bodies is about 1 centimeter, a distance that is closed over a span of (from the perspective of the outside observer) millions of years. As the mass of the black hole is attrited, that distance closes to a millimeter, then half a millimeter, and so on, until finally, the distance closes to about 5 times the width of a W Boson. This is the point at which final dissipation occurs, something that I will address toward the end of this publication.

The idea that anything can escape from a singularity forms a corollary to the notion that "not even light can escape it." Whether a subatomic particle can escape it depends entirely upon its direction of travel when it passes near the event horizon. If light, for example, passes near the event horizon and is moving parallel to it, it would likely be drawn into its gravity field. However, radiation emitted by singularities, given that particles are moving directly away from the gravitational body, have sufficient energy to escape.

As I alluded to earlier, it is my belief that all singularities must at least begin with a very comparable mass. In support of this contention, I should point out that in the core of any neutron star, when these protons and neutrons are instantly reduced to their constituent subatomic particles, the gluonic components will "marry" their nearest neighbor in a rapid and predictable fashion until, something like a millisecond later, there are only two distinct clusters of gluons. Since the attractive force carried these odderonic clusters would be enormous, any amount of gluons beyond a specific count would result in the core of the singularity being stratified, with the outer strata being rapidly sloughed off. A limit should be found to exist on how many gluons and surrounding bosons and leptons can coexist stably in the ultimate core of the singularity. Ultimately, there is a specific number of protons/neutrons that, once they are joined in the core of a neutron star, triggers collapse into a singularity. Once this occurs, any free-floating non-neutronic mass near the surface of the star would be trapped on the outside of the "shell" formed by

this consolidation. Anything on the outside of that shell would rapidly be sloughed off. This is what makes it so that all black holes begin life with the same mass and attractive properties. The “sloughed off” material is rapidly destroyed and, in turn, carried away by Hawking radiation. It does this without ever entering the particle field surrounding the core of the singularity and it happens so rapidly that it is unlikely that it will be directly observed.

Another myth I would dispel is the idea that new mass can be integrated into an existing singularity, causing it to grow. Although stellar matter, for example, be drawn toward a singularity and it can be effectively destroyed by it, the process by which this new mass destroyed and ejected is distinct from the process that slowly erodes the core mass of gluons, bosons, and leptons. Newly absorbed mass entering the vicinity of a singularity cannot, in this author’s view, enter into the lepton field of the core of the singularity, although it can enter into the area beneath the so-called event horizon, which appears black at the center of accretion discs. Long before any new matter can come into proximity with the lepton layer, it is caught in the north and south-oriented Hawking radiation beams and is pushed away from the core mass, reduced to energy.

Conclusion

Finally, I propose that singularities dissipate only when sufficient mass is ejected from the core, which retains its gluonic integrity until near the very end of the process. Just as it turns out that mass is not causative of gravity but rather, correlative, it turns out that the reason for the final collapse of a neutron star into a singularity is the strong attraction of gluons, with gluons having the special property of attracting not only material with the opposite charge, but like-charge particles and each other as well. As mass decreases, more of these gluons are liberated from the core until, finally, the singularity dissipates entirely, as these gluons, with only a thin layer of bosons remaining, can join with the bosons once again. During the final stage, remnant bosons marry with the gluons and disperse in the form of newly reintegrated protons. The final and poetically just act of a singularity is the emission of a thin wisp of hydrogen gas.